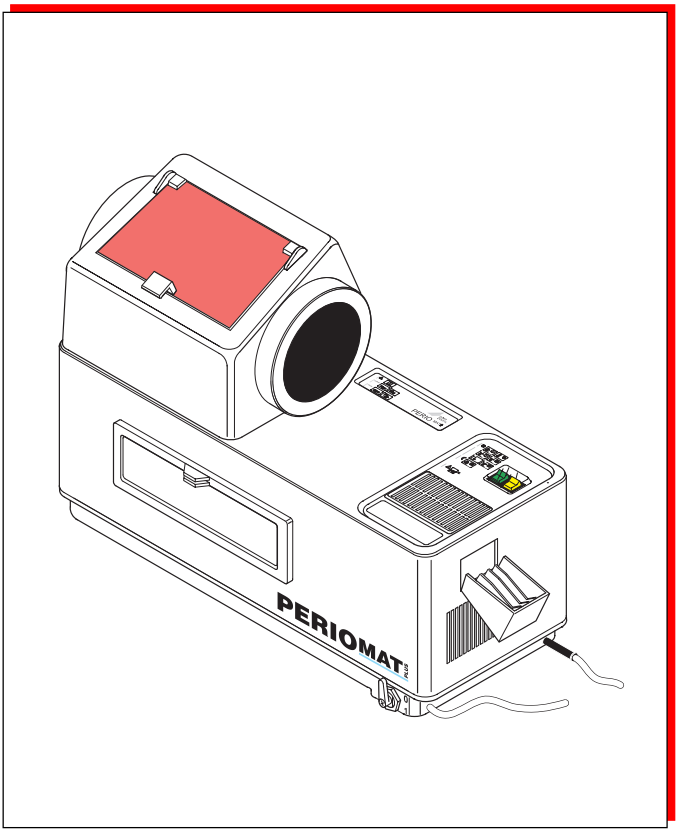
OPERATING INSTRUCTIONS
DÜRR PERIOMAT PLUS 1307 / 1308



CE

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2000/04

GB

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IMPORTANT INFORMATION

1. ADVICE

1.1 Safety advice

Work on electrical equipment may only be carried out by qualified electricians (per VBG 4) or by our service personnel!

Only use original spare parts for repairs, otherwise the guarantee will be invalidated.

When combining pieces of equipment, or during repairs to electrical parts, the relevant safety and testing regulations must be observed:

- IEC 364-.-.., prEN 50110-1, IEC 64 (Sec) 629,VDE 0702 Part 1
- Accident protection regulations UVV VBG 1, 4, 121.
- Regulations concerning X-rays DIN 6868, T5 / T51

1.2 Electrical safety checks

As per VDE 0701 after installation and commissioning, service, maintenance and repair of an electrical device an electrical safety check is mandatory.

1.3 Safety advice and symbols

The operating instructions employ certain terms and symbols for especially important applications:

Instructions relating to efficient use of the appliance and other instructions

Instructions and regulations relating to the avoidance of injury and / or serious damage

Unplug the appliance.

2. PRODUCT INFORMATION

2.1 Correct usage

The Periomat Plus must only be used to develop intra-oral X-ray films in dental surgeries and dental clinics.
The size of film to be developed must lie in the range 2 x 3 to 5.7 x 7.6 cm.
Film of the size 3 x 4 cm can be placed directly into the film feed, for films of other sizes the appropriate adapter must be used.
Perfect archive-ready results can best be achieved by using the specially developed DÜRR Periomat Intra Chemicals at 25°C.

In the FRG, as well as in a number of other countries, used X-ray chemicals are classified as Special Waste and must be separated and disposed of appropriately.

2.2 Incorrect usage

The Periomat Plus cannot be used for OPG or panorama views.

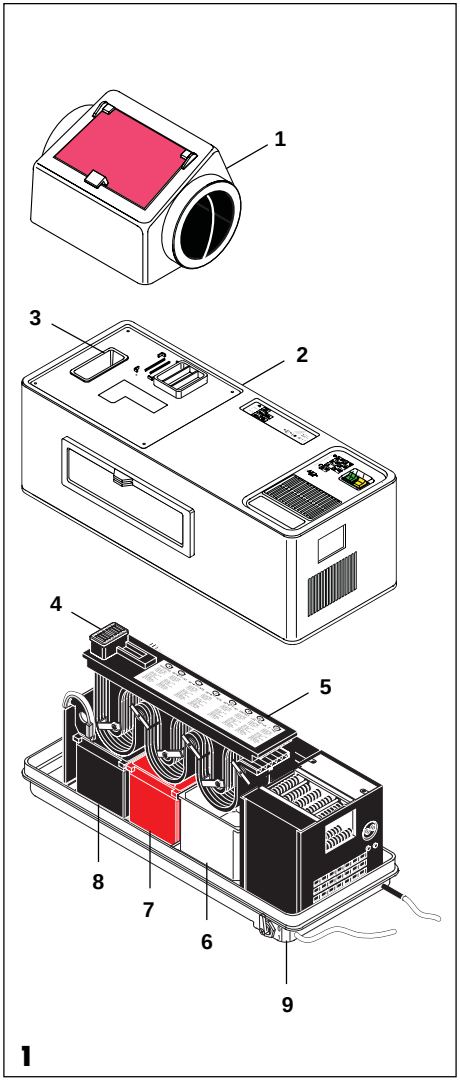
3. MODEL OVERVIEW

Periomat Plus with Daylight Attachment, Heater and Front Flap

1307-01 (230V, 50Hz)

Periomat Plus without Daylight Attachment, Heater and Front Flap

1308-01 (230V, 50Hz)



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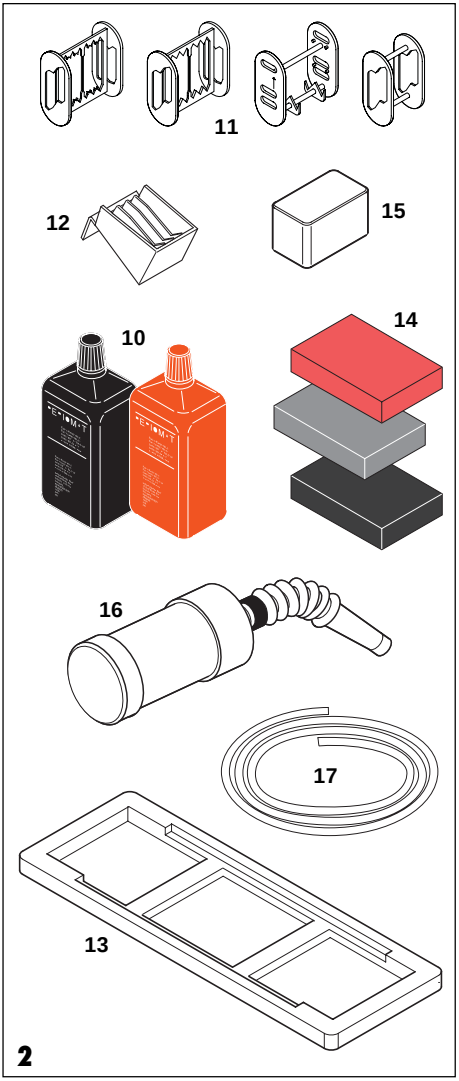

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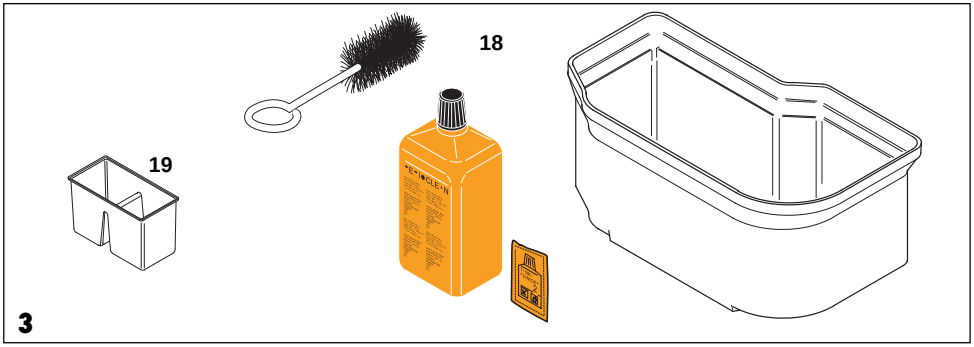


3

4. DELIVERY CONTENTS

Fig. 1

(1) Daylight attachment
Model 1307-01, -02, -03 1307-700-00
(2) Lid 1307-981-00
(3) Waste receptacle 1303-000-06
(4) Film feed frame 1303-000-05
(5) Film transport 1307-300-00
(6) Water bath 1307-007-00
(7) Fixer bath 1303-000-09
(8) Developer bath 1303-000-08
(9) Base
Operating instructions D/GB .. 9000-600-11/01

4.1 Accessories

Fig. 2

(10) 1 Set of chemicals
Periomat Intra 1307-080-00
(11) Adapters for films
3 Pcs. 2x3.5 cm 1303-000-01
2 Pcs. 4x5 and 2.7x5.4 cm . 1303-000-02
3 Pcs. 2.4x4 cm 1303-000-18
1 Pcs. 5.7x7.6 cm 1303-000-22
(12) 1 Film collector 1303-001-00
(13) 1 Draining rack 1303-000-13
(14) Sponges
2 Pcs. grey 1330-000-06
1 Pcs. red 1330-000-05
(15) 1 Lightproof cap
for film entry 1303-000-14
(16) 1 Water bottle 1307-001-00
(17) 1 Drain hose 1307-000-07

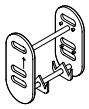
4.2 Special accessories

Fig. 3

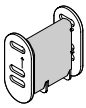
(18) Cleaning Set
"Perio-Clean" 1304-070-00
(19) Bath, dual-walled 1303-000-16

5. TECHNICAL DATA

Model	1308-01	1307-01		
Voltage (V)	230	230		
Frequency(Hz)	50	50		
Current (A)	1,8	1,8		
Output (W)	400	400		
Duty cycle (%ED)	100			
Film run through time (min) 50 Hz	5			
Developing temperature (°C)	25			
Heating up time (min/°C)	~7			
Heating (V)	24			
Fuse (A)	T 2,5			
Container (l)				
Developer	1			
Fixer	1			
Water	1,25			
Weight (kg)	10,2	11,2		
Size (HxBxT)	22x63x25	40x63x25		

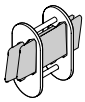


1303-000-22

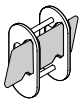


5,7 x 7,6 cm

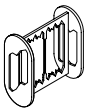
1303-000-02



2,7 x 5,4 cm



4 x 5 cm



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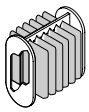
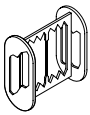
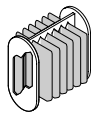


2 x 3,5 cm



1303-000-18



2,4 x 4 cm

4

5.1 Recommended film sizes and adapters

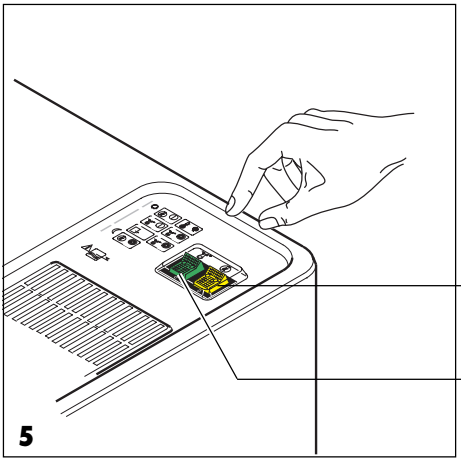
WITHOUT Adapter:

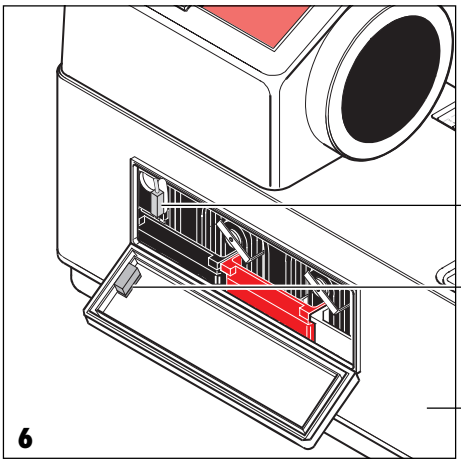
- 3 x 4 cm (max. 8 films)

WITH Adapter:

- 5.7 x 7.6 cm (max. 1 film)
- 2.7 x 5.4 cm (max. 2 films)
- 4 x 5 cm (max. 1 film)
- 2 x 3.5 cm (max. 6 films)
- 2.4 x 4 cm (max. 6 films)

The film applications together with the relevant order numbers can be seen in Fig. 4.





6. OPERATING FUNCTIONS

6.1 Indicators

Yellow Indicator: Mains Supply Switch (20)

Pos. O: Periomat + Heating **OFF**
Pos. I: lit, Periomat + Heating **ON**

Green Switch: Film-transport Switch (21)

Pos. O: Film transport OFF
Pos. I: Film transport ON, developing starts

Green Control Lamp: Heating (30)

Blinks during the warm-up phase from bath temperature of 22° C

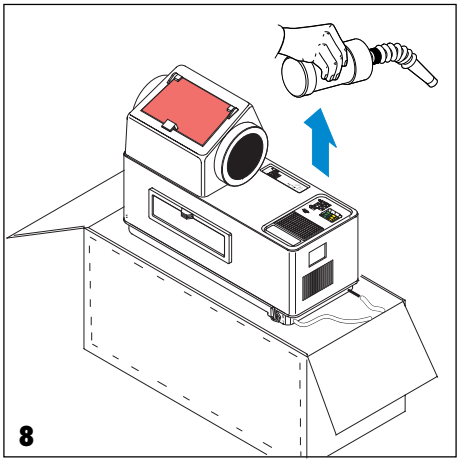
Lights permanently when chemicals are at developing temperature

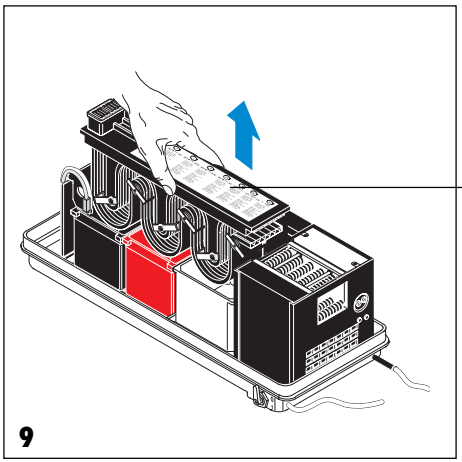
The Periomat is ready for operation when both mains supply and transport switch indicator lights are on.

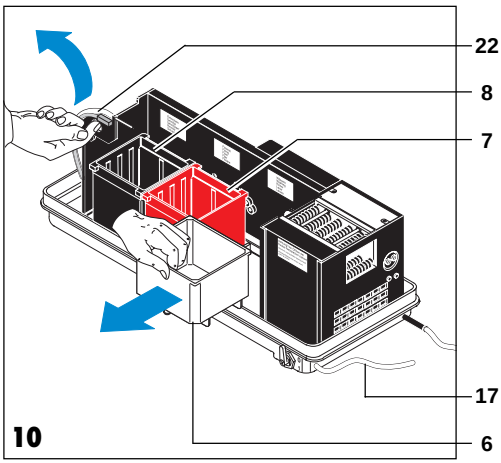
Transport interruption when opening front panel or cover

For safety reasons, if the front panel is opened during film development, the **transport motor** is automatically switched off and the films will not be transported. The same is true for the cover (2). This switch-off is controlled by a Reed-switch (30) mounted on the temperature sensor holder, which is activated by a magnet (31) mounted on the front panel.

Disconnect the appliance from the mains supply before removing the lid.







MOUNTING

7. INSTALLATION

7.1 Installation - room

- Install the Periomat in a **dry, well-ventilated room**.
- The mains supply socket must be so chosen that the mains supply plug is visible, safe and easily accessible.

Max. ambient temperature is 25°C. Do not position the Periomat in direct sunlight! Otherwise the films will be exposed despite the daylight attachment.

7.2 Installation

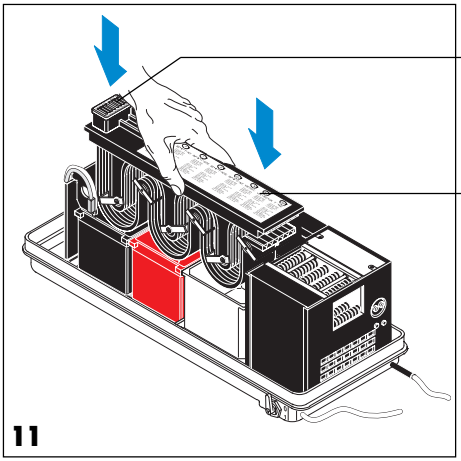
Please keep the original packing for possible return of product. DÜRR DENTAL accepts no liability for damage caused during transport, resulting from faulty or inadequate packing!

- Lift the Periomat out of its box. Remove the water bottle and flexible hose from the right hand packaging. Remove the plastic packing material.
- Stand the appliance on a **stable and level surface** near a mains supply socket.
- Remove lid.
- Remove cardboard box with adapters.
- Remove transport packaging (blue foam rubber and material in dryer area)!
- Remove sponges from baths.
- Remove the film transport (5) and the three baths, black “E” (8), red “F” (7) and white “W” (6), and clean them of any packing material and dust.

Before removing the “E”-bath, swing the temperature regulater (22) to the rear.

- Fit drainage hose (17).

8. COMMISSIONING

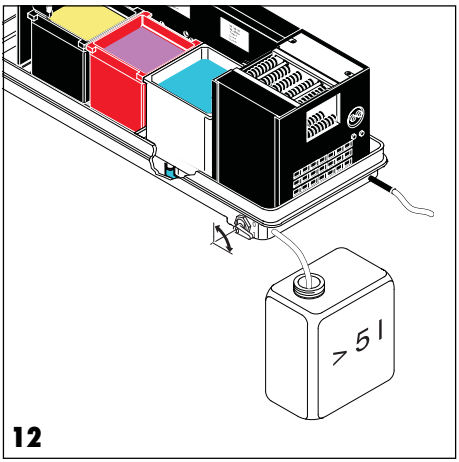


11

Check that the voltage as given on the appliance model label corresponds with the voltage as supplied at the mains!
If using the appliance for the first time during winter allow the appliance to warm to room temperature first, otherwise there is the risk that condensation builds up on the electronic control board causing a short circuit!

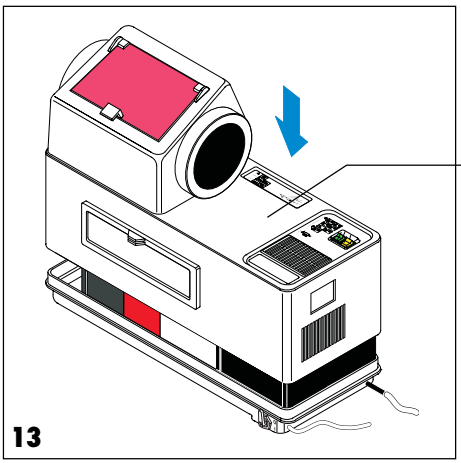
After filling the chemicals do not move the Periomat as there is the risk of chemicals mixing!

- Carefully insert the film transport (5).
- Place the numbered film frame (4) onto the film entry (slot 8 to the front).



12

- Remove the drainage hose from its holder and set in collector (min. 5 l) (to collect water from the water bath). Place this collector on the floor.



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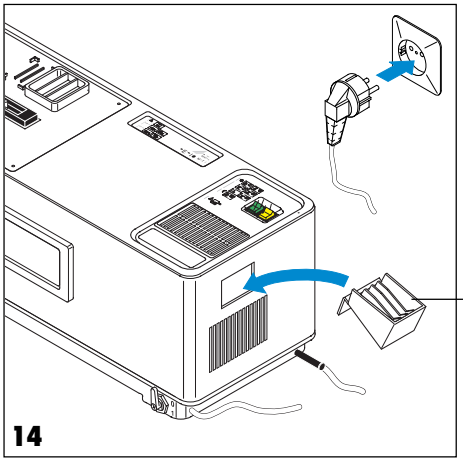
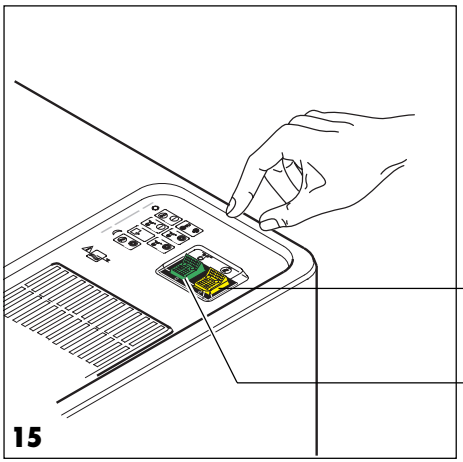
- Place lid (2) onto appliance (flap to the front).
- Open and close the front flap until you hear it click firmly into place.



- Place the film collector (12) into position.
- Plug appliance into mains socket.



- Yellow main switch is set (20) ON (lit).

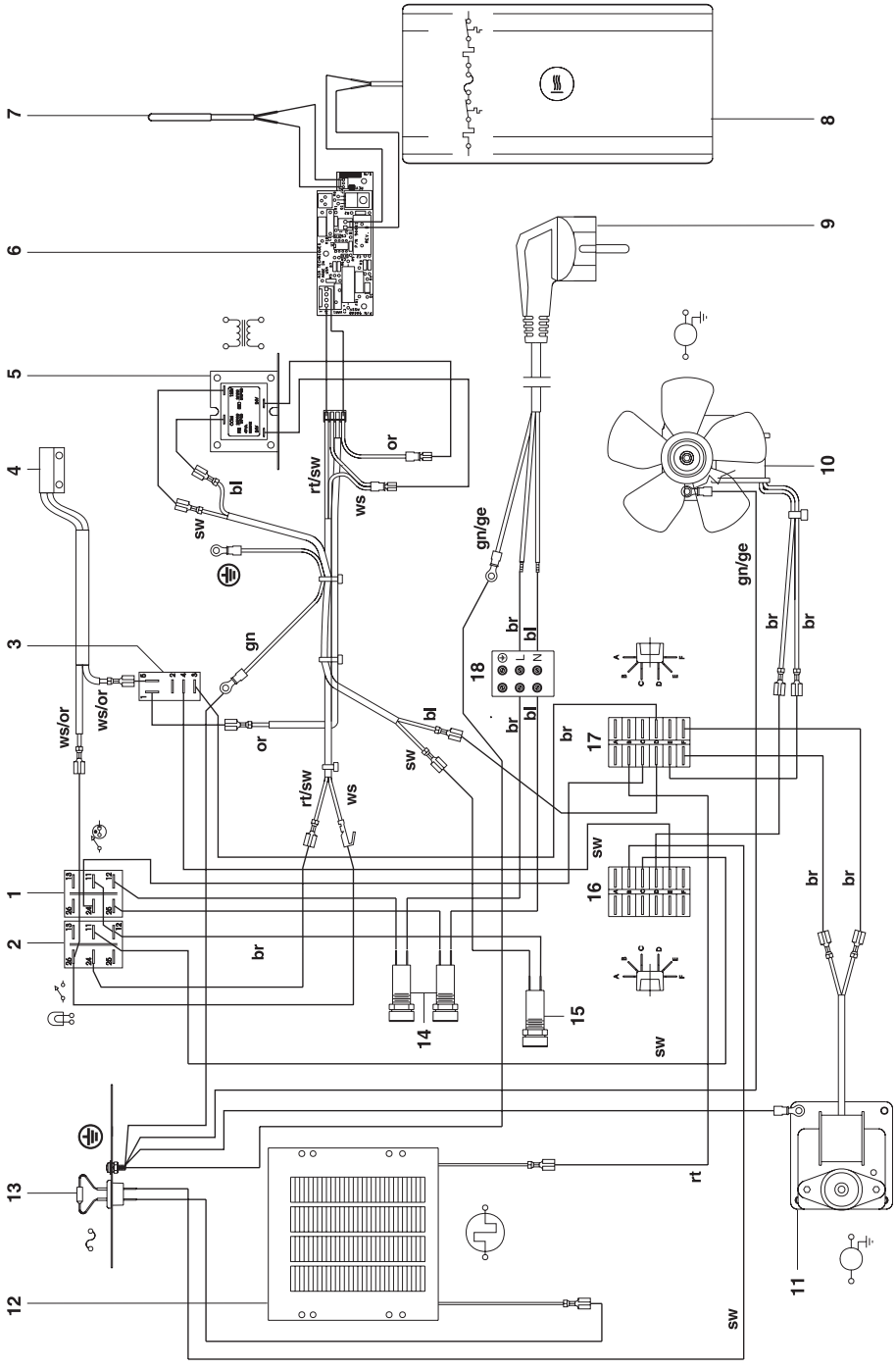
Both baths “E” and “F” are mounted on a temperature-regulated heating plate. If the temperature is below 25°C during filling, when the yellow main switch (20) is activated the chemicals are automatically heated and maintained at the required temperature.

Example: Start-up temperature 18°C, warm-up time approx 7 min per °C, ie waiting time is c. 45 min. until the correct developing temperature is reached.

- The green display (21) begins to blink at a temperature of 22°C and is fully lit when the correct developing temperature has been reached (after ca. 45 min).

Do not develop films until the control lamp (30) stops blinking!

9. CIRCUIT DIAGRAM

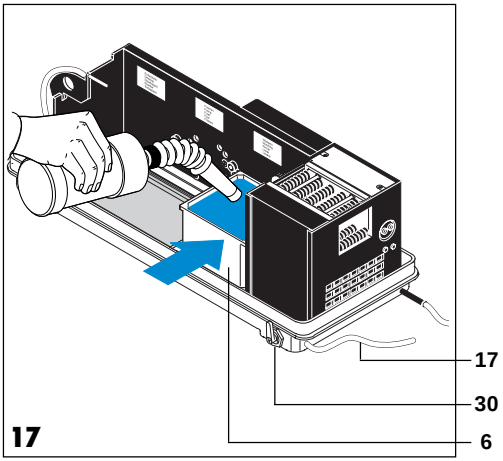


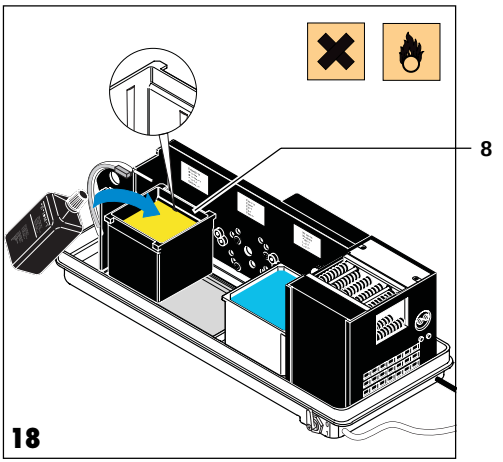
9.1 Description

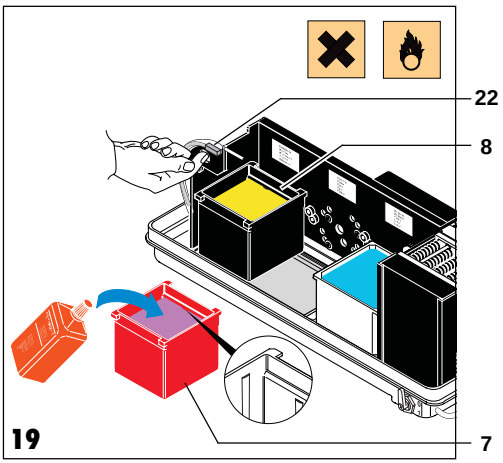
1 Main switch orange
2 Transport switch green
3 Relay
4 Reed contact
5 Transformer
6 Electronics
7 Temperature -Sensor
8 Bath Heating
9 Main plug (earthed)
10 Film dryer ventilator
11 Transport motor
12 Film dryer heating
13 Thermal fuse
14 Power input fuse
15 Controller fuse
16 Distributor 1
17 Distributor 2
18 Distributor power supply

9.2 Cable coloring

gn/ge = green/yellow
rt/sw = red/black
ws/or = white/orange
sw = black
rt = red
br = brown
bl = blue
or = orange
gn = green







USE

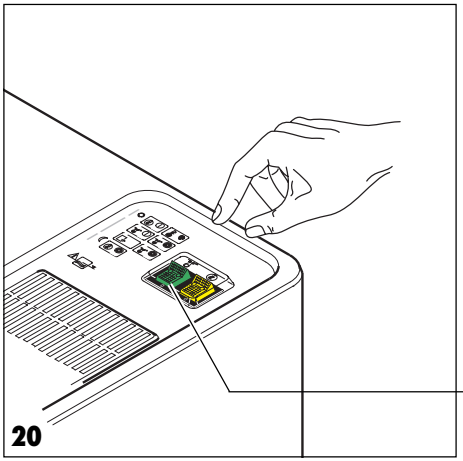
10. FILLING CHEMICALS

In order to produce perfect film results, we strongly recommend using the specially developed DÜRR Periomat Intra Chemicals.

Before removing the lid, turn the yellow power switch OFF and unplug the appliance.

- Close the water outlet (30).
- Fill the water bottle to the marking (1.25 l) with **max. 25°C warm water**. Attach hose to bottle.
- Pour the complete contents of the water bottle into the water bath “W” (6).
- Place the black developer bath “E” (8) into position.
- Pour developer (black bottle) into the black bath “E” (8).
- Swing the temperature regulater (22) downwards.
- Pour fixer (red bottle) into the red bath “F” (7) and place bath into position.
- Both baths “F” (7) and “E” (8) should now be filled with max. 25°C warm water to the lower marking.

The developer and fixer should be well stirred, otherwise the results of developing could vary greatly due to temperature fluctuations.

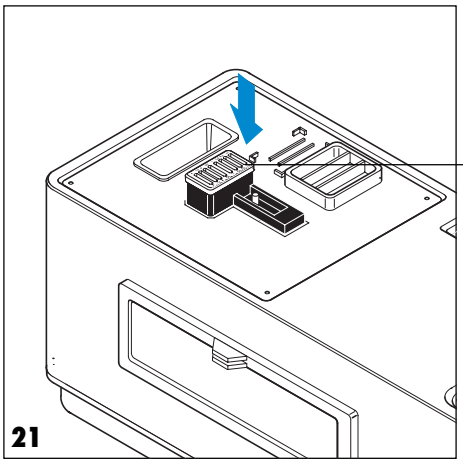


11. OPERATION

Before inserting films see 5.1 “Recommended film sizes and adapters”.

11.1 Film insertion WITHOUT adapter

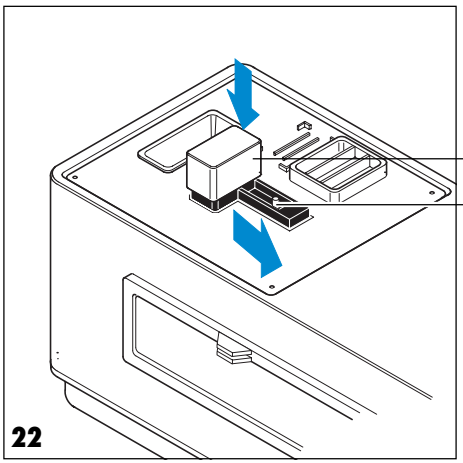
- Switch the green transport button (21) ON.



- Insert 3 x 4 cm film directly into the numbered cover (4) of the 8-slot film feeding frame.

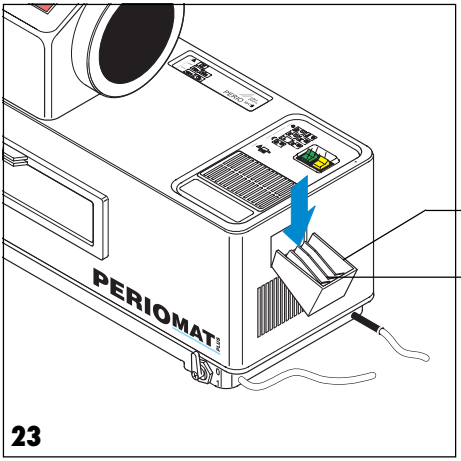
  Only 1 film per slot!

Place root-treatment films in slot 8. After 2 min. 30 sec. the film should be removed from slot 8 using tweezers via the front flap. This film cannot be used for archival purposes due to omission of water stage!



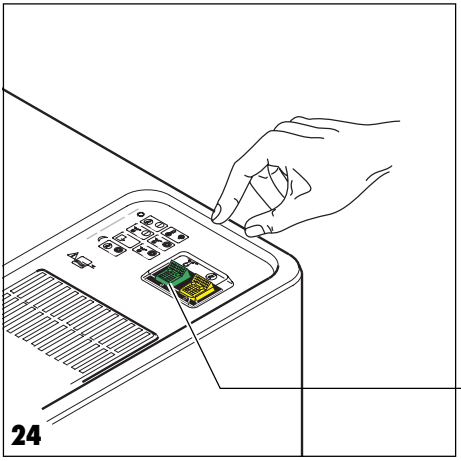
- Position lightproof cap (15) in place.
- Push the start lever (23) to the right.

A new film can only be inserted, when the start lever (23) has returned to its starting position (after c. 50 seconds).



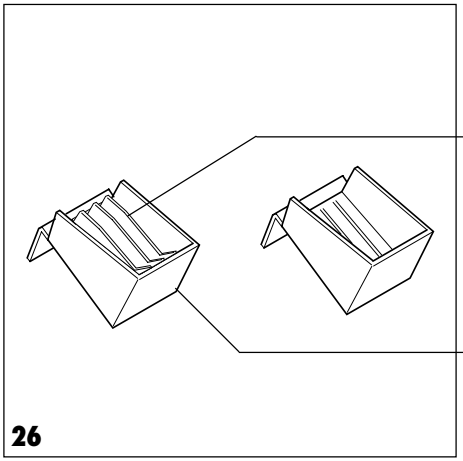
23

- After development the 3 x 4 cm films are deposited in the film collector (12) between the film separators (24) *.



24

- After **all** films have been deposited in the film collector, turn the green transport switch (21) to OFF.
- When the surgery is closed or during longer breaks (e.g. lunch break) turn the yellow power switch (20) to OFF.



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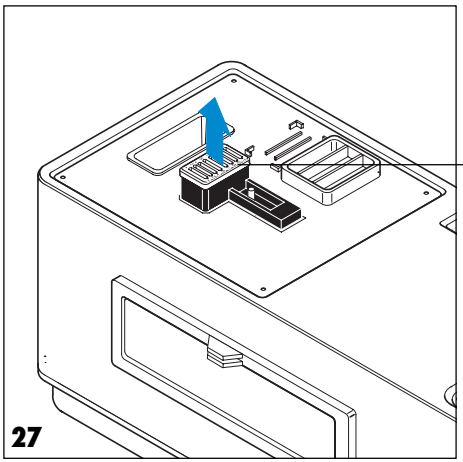
11.2 Film insertion WITH adapter

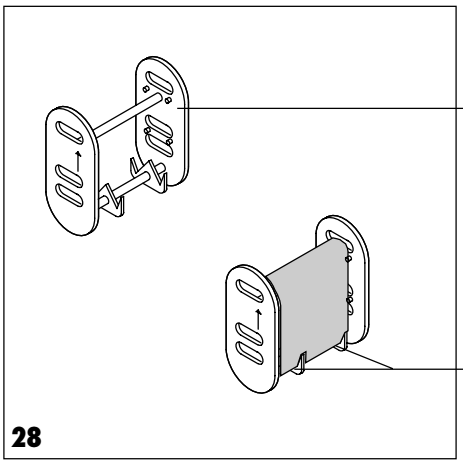
- Remove the film separators (24) from the film collector (12).

In cases where there is frequent developing **WITH** and **WITHOUT** an adapter, we recommend that you order a second film collector (12). (Order Nr. 1303-001-00)



27

- Remove film feed numbered frame (4).



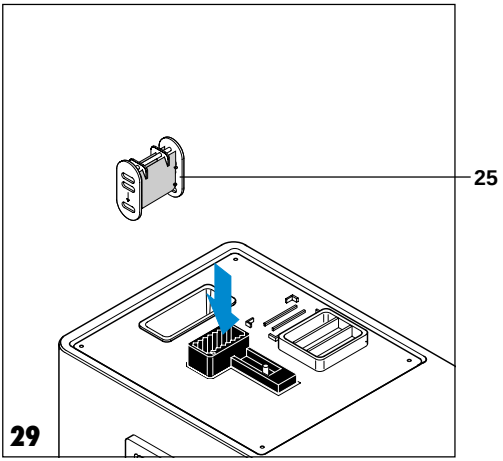
28

- Place film(s) in appropriate adapter:

Occlusal-Film (5.7 x 7.6 cm)

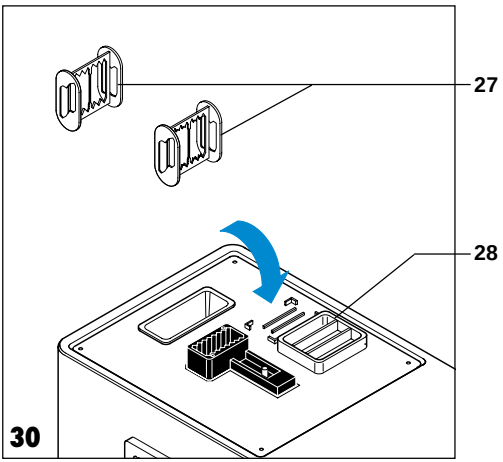
- Carefully bend the Occlusal-Film in the middle.
- Place in the correct adapter (25).

The film must sit firmly in the holder (26).



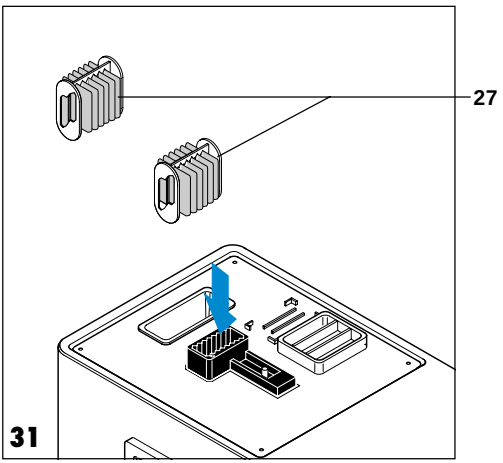
- Place the adapter (25) in the film feed.

The arrow on the adapter (25) must point downwards.

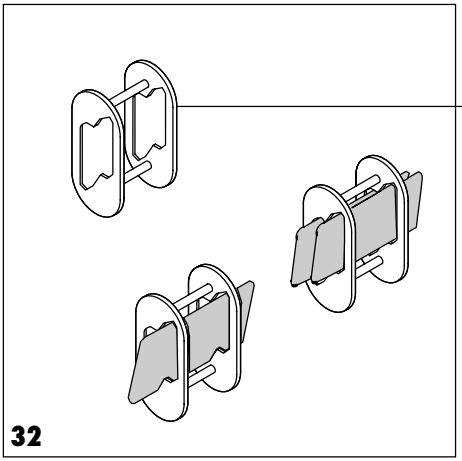


2 x 3.5 and 2.4 x 4 cm Films

- Place the adapter (27) laterally into the holder (28) next to the film entry.
- Each film (max. 6 films) must be pressed cross-wise into the slots in the adapter (27) until they touch the holder.
  The films must lie parallel to each other and must not touch.

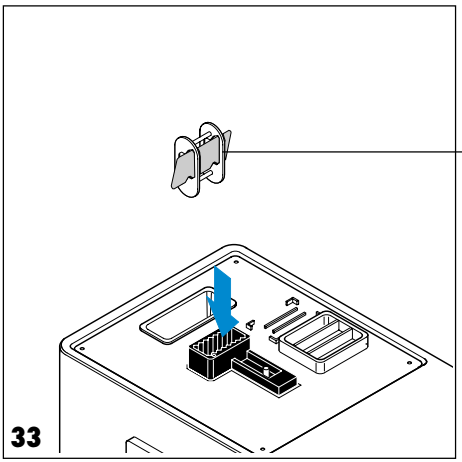


- Place the adapter (27) vertically into the film feed.

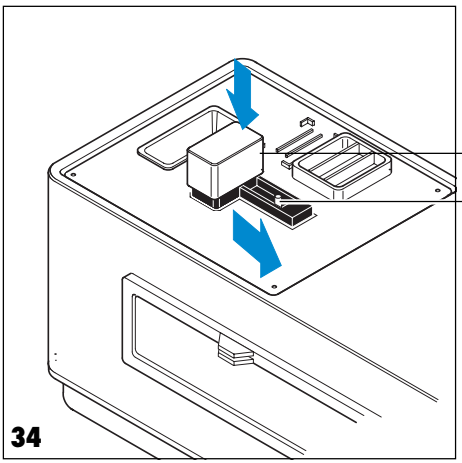


4 x 5 and 2.7 x 5.4 cm Films

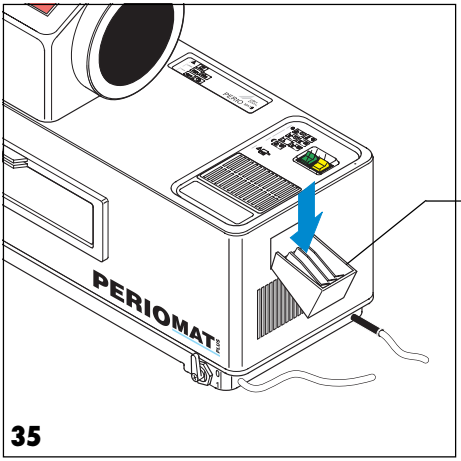
- Each film (max. 2 films) must be placed into the slots in the adapter (29).



- Place the adapter (29) vertically into the film feed. The edges of the film must not touch the sides of the film feed shaft.



- Set lightproof cap (15) into place.
- Slide the start lever (23) to the right.



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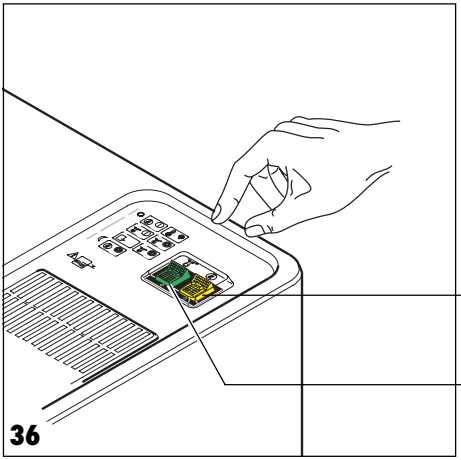
- After developing, the adapter complete with film will fall into the film collector (12).



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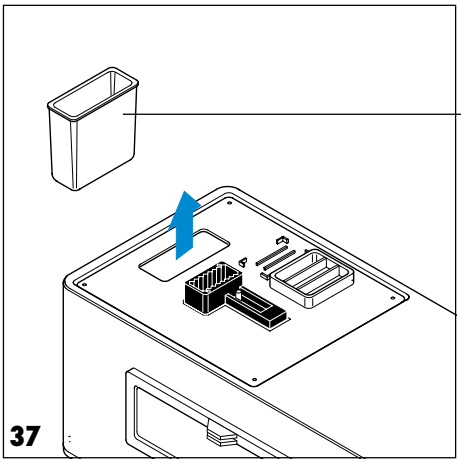
- After developing switch the green transport button (21) to OFF.
- When the surgery is closed or during longer breaks (e.g. lunch break) turn the yellow power switch (20) to OFF.



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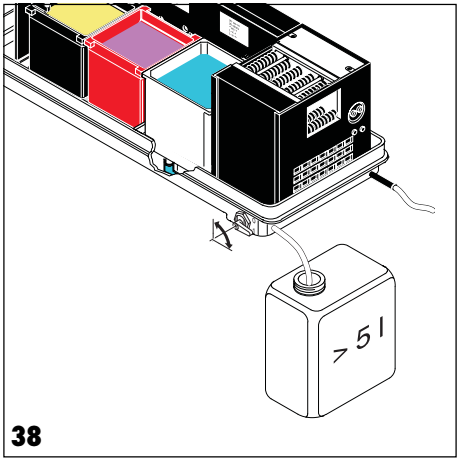
11.3 Miscellaneous

- The waste receptacle (3) is provided for the film packaging, and can be removed for emptying.



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12. MAINTENANCE

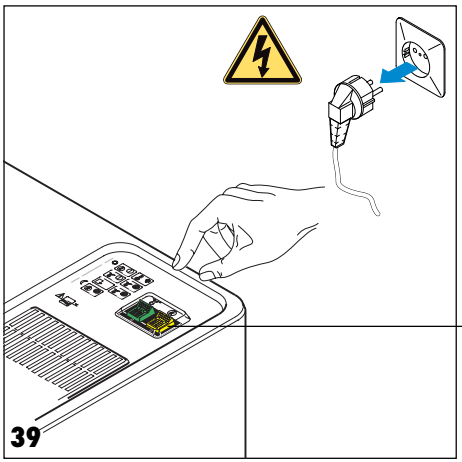
12.1 Changing the water

Weekly 2 x

and

check level of chemicals!

The drainage hose must be connected to a water collector (min. 5 l) (to receive water from the water bath). Place the container on the floor. On disposal of the waste water observe all relevant regulations!



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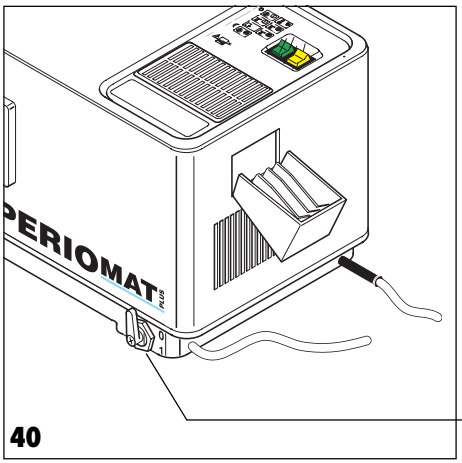
- Turn the yellow mains switch (20) to OFF.

Unplug the appliance.



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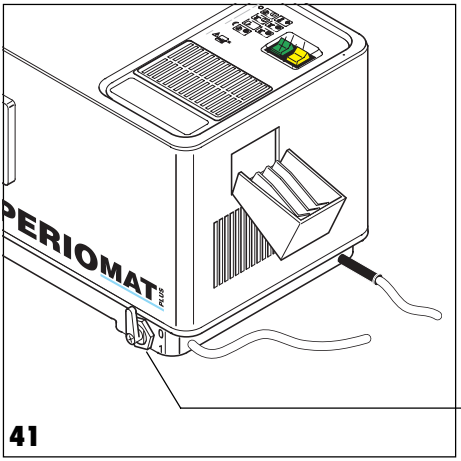
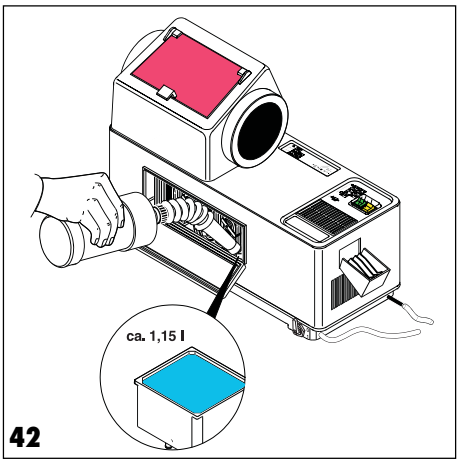
- Open the water outlet (30) and wait until the container is empty.



- Close the water outlet (30).



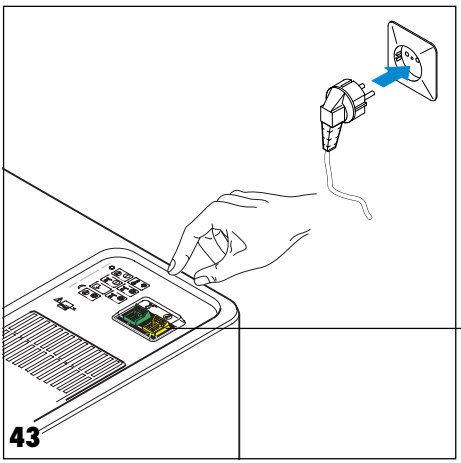
- Fill the water bottle with **max. 25°C warm water** to the marking. Replace hose on bottle.

When changing the water we recommend the use of an anti-alga solution.

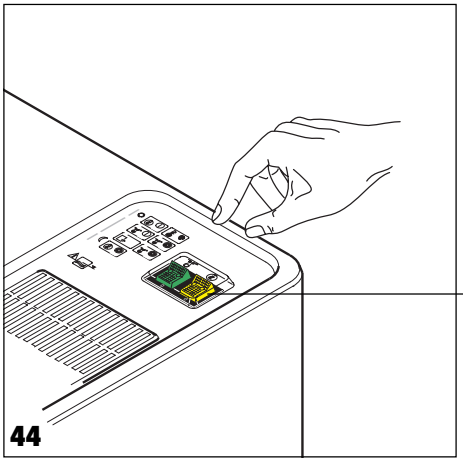
- Open front flap.
- Pour the contents of the water bottle into bath “W”.
- Check the levels of developer “E”- and fixer baths “F” and, if necessary, fill to the marking (see inside of flap) with **max. 25°C warm water**.

The temperature for developer and fixer is set at 25°C and must not be exceeded, or the films will appear too dark.

- Close front flap.



- Plug in appliance.
- Switch yellow power switch (20) to ON.

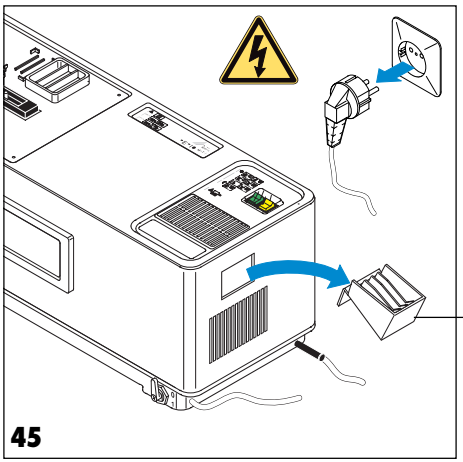


12.2 Changing chemicals

Every 3 weeks

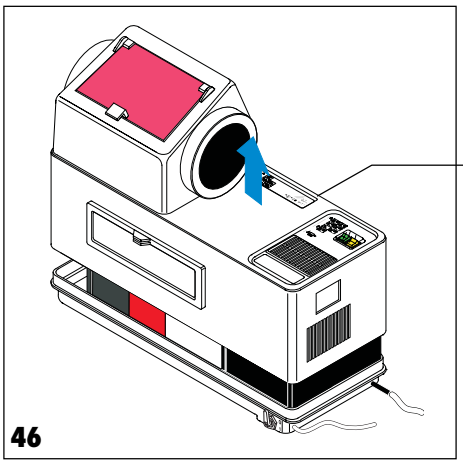
After c. 3 weeks, or after developing c. 350 films of 3 x 4 cm format, the **developer and fixer** are used up and must be **replenished**.

- Turn the yellow mains switch (20) to OFF.

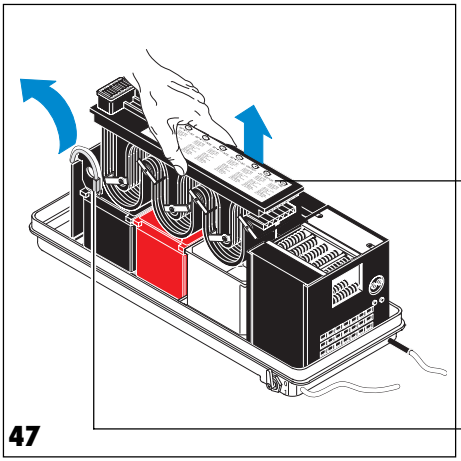


Unplug the appliance.

- Remove film collector (12).



- Remove lid (2).



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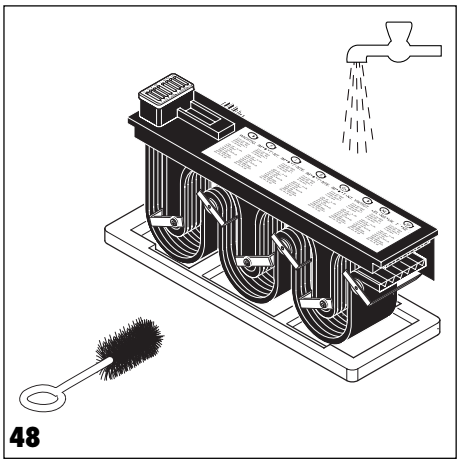
- Slightly raise the film transport (5), allow the chemicals to drain off.
- Place the film transport on to the draining rack.
- Swing temperature regulater (22) to the rear

- Rinse the film transport (5) under **luke-warm running water** (the film feed must remain dry).
- Remove any deposits with a brush (included in the cleaning set “Perio-Clean”).
- Empty of water and chemicals.

In Germany X-ray chemicals are classified as Special Waste and must be separated and disposed of separately. Observe all relevant regulations!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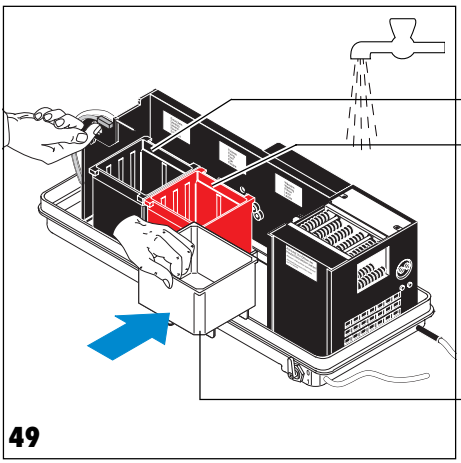
- All 3 baths (6, 7, 8) should be cleaned, using the appropriate colour-coded sponge, with **warm water** and any dirt thoroughly removed.
- The area around the film feed should be cleaned using a fluff-free cloth.
- Change the chemicals according to the instructions in section 9.



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12.3 Chemical cleaning

Every 6 months

- Every 6 months clean the film transport with “chemical cleaner”.
  We strongly recommend the use of our chemical cleaning set “Perio-Clean”, Order.Nr.: 1304-070-00.
  Detailed instructions are included in each cleaning set.